

REMARKS

The Office Action dated November 19, 2004, has been received and carefully considered. In this response, the specification and claims 1-24 have been amended. Entry of the amendments to the specification and claims 1-24 is respectfully requested. Reconsideration of the outstanding objections/rejections in the present application is also respectfully requested based on the following remarks.

I. THE OBJECTION TO CLAIMS 6, 12, 18, AND 24

On page 2 of the Office Action, claims 6, 12, 18, and 24 were objected to for various informalities.

Claims 6, 12, 18, and 24 have been amended to address the Examiner's concerns.

In view of the foregoing, it is respectfully requested that the aforementioned objection to claims 6, 12, 18, and 24 be withdrawn.

II. THE OBJECTION TO THE SPECIFICATION

On pages 2-3 of the Office Action, the specification was objected to for having an Abstract in excess of 150 words.

The Abstract has been amended to comply with the 150 word limit requirement.

In view of the foregoing, it is respectfully requested that the aforementioned objection to the specification be withdrawn.

III. THE ANTICIPATION REJECTION OF CLAIMS 1-24

On pages 5-7 of the Office Action, claims 1-24 were rejected under 35 U.S.C. § 102(e) as being anticipated by Latif et al. (U.S. Patent Application Publication No. 2003/0091037). This rejection is hereby respectfully traversed.

Under 35 U.S.C. § 102, the Patent Office bears the burden of presenting at least a prima facie case of anticipation. In re Sun, 31 USPQ2d 1451, 1453 (Fed. Cir. 1993) (unpublished). Anticipation requires that a prior art reference disclose, either expressly or under the principles of inherency, each and every element of the claimed invention. Id. "In addition, the prior art reference must be enabling." Akzo N.V. v. U.S. International Trade Commission, 808 F.2d 1471, 1479, 1 USPQ2d 1241, 1245 (Fed. Cir. 1986), cert. denied, 482 U.S. 909 (1987). That is, the prior art reference must sufficiently describe the claimed invention so as to have placed the public in possession of it. In re Donohue, 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985). "Such possession is effected if one of ordinary skill in the art could have combined the publication's

description of the invention with his own knowledge to make the claimed invention." Id..

The Examiner asserts that Latif et al. discloses the present invention as claimed. However, it is respectfully submitted that Latif et al. fails to disclose a method for providing virtual private addressing in a storage network comprising: receiving a first data packet at a carrier network, wherein the first data packet comprises a first header comprising source storage information and destination storage information, and wherein the carrier network interconnects storage area networks in the storage network; and swapping the source storage information and the destination storage information in the first header with source carrier information and destination carrier information to form a second data packet, wherein the second data packet comprises a second header comprising the source carrier information and the destination carrier information for routing the second data packet from a source carrier node to a destination carrier node within the carrier network, and wherein the second header also comprises the source storage information and the destination storage information, as presently claimed. Indeed, Latif et al. fails to mention, or even suggest, a second header source comprising

both source and destination carrier information and source and destination storage information.

It is also respectfully submitted that Latif et al. fails to disclose a method for providing virtual private addressing in a storage network comprising: receiving a first data packet at a carrier network, wherein the first data packet comprises a first header comprising source storage information and destination storage information, and wherein the carrier network interconnects storage area networks in the storage network; and encapsulating the first data packet within a second data packet, wherein the second data packet comprises a second header comprising source carrier information and destination carrier information for routing the second data packet from a source carrier node to a destination carrier node within the carrier network, as presently claimed. Indeed, Latif et al. specifically teaches against encapsulation at paragraph 39 thereof.

At this point it should be noted that claims 1-24 have been amended to more clearly recite the claimed invention.

In view of the foregoing, it is respectfully requested that the aforementioned anticipation rejection of claims 1-24 be withdrawn.

IV. CONCLUSION

In view of the foregoing, it is respectfully submitted that the present application is in condition for allowance, and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed telephone number, in order to expedite resolution of any issues and to expedite passage of the present application to issue, if any comments, questions, or suggestions arise in connection with the present application.

To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made.

Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-0206, and please credit any excess fees to the same deposit account.

Respectfully submitted,

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APPENDIX A

Please amend the Abstract at page 30, lines 2-30, as shown in the following replacement Abstract:

A technique for enabling a shared storage provider (SSP) to provide shared data storage to a plurality of customers while providing greater privacy and security of each customer's data by implementing a virtual private (VP) addressing scheme is disclosed. The technique also allows a storage networking service carrier to provide connectivity between a plurality of customer storage networking sites, keeping each customer separate from each other. In one embodiment, the technique is realized by network architecture and a scheme to separate and virtualize storage traffic and stored data on a shared infrastructure. ~~Functionally, the scheme provides for the following features: translation between user storage network addresses to carrier addresses; recovery of user storage network addresses when data is returned to the user; use of the carrier assigned addresses to separate the users within the carrier's network; recognition of user storage address within the storage device for partitioning within the user's storage space assigned by the SSP; Storage virtualization or the logical representation~~

~~of a storage independently of its physical organization; and the
displacement of address mapping and virtualization functions
away from devices directly attached to storage. All of the
above can be implemented singly or in combination, by any
networking technology including SONET, ATM, IP, Ethernet and
Fiber Channel network technologies.~~

APPENDIX B

1 (Currently Amended). A method for providing virtual private addressing in a storage network ~~translating a customer address of a first data packet to a carrier address of a second data packet, wherein the customer address corresponds to a location in a customer network and the carrier address corresponds to a location in a carrier access network that provides access to the customer network,~~ the method comprising:

receiving ~~the~~ a first data packet at a carrier access network, wherein the first data packet comprises a first header ~~containing customer~~ comprising source storage information and ~~customer~~ destination storage information, and wherein the carrier network interconnects storage area networks in the storage network; and

swapping the ~~customer~~ source storage information and the ~~customer~~ destination storage information in the first header with ~~carrier-assigned~~ source carrier information and ~~carrier-assigned~~ destination carrier information to form ~~the~~ a second data packet, wherein the second data packet comprises a second header ~~containing~~ comprising the ~~carrier-assigned~~ source carrier information and ~~carrier-assigned~~ the destination carrier information for routing the second data packet from a source carrier node to a destination carrier node within the carrier

network, and wherein the second header also comprises the source storage information and the destination storage information.

2 (Currently Amended). The method of claim 1, further comprising:

~~restoring the customer source information and the customer destination information in the first header so as to recover~~
recreating the first data packet from the second data packet at the destination carrier node for routing the first data packet to a destination storage address based upon the destination storage information.

3 (Currently Amended). The method of claim ~~1~~2, wherein the ~~customer destination storage address is a shared storage network address~~
an address in a shared storage area network in the storage network.

4 (Currently Amended). The method of claim 1, further comprising the step of:

processing the second data packet within the carrier ~~access~~ network according to the second header ~~containing~~ comprising the ~~carrier assigned source~~ carrier information and the ~~carrier assigned~~ destination carrier information.

5 (Currently Amended). The method of claim ~~1~~2, further comprising:

storing the ~~second~~ recreated first data packet at a destination storage address in a shared storage area network.

6 (Currently Amended). The method according to claim 1, wherein the ~~customer~~ storage network comprises a shared storage area network accessible by one or more customers, and the one or more customers send a plurality of the first data packets to the shared storage area network over the carrier ~~access~~ network, the method further comprising:

separating the second data packet ~~by~~ according to customer.

7 (Currently Amended). An apparatus for providing virtual private addressing in a storage network ~~translating a customer address of a first data packet to a carrier address of a second data packet, wherein the customer address corresponds to a location in a customer network and the carrier address corresponds to a location in a carrier access network that provides access to the customer network,~~ the apparatus comprising:

an address translation node for receiving ~~the~~ a first data

packet at a carrier ~~access~~ network, wherein the first data packet comprises a first header ~~containing customer~~ comprising source storage information and ~~customer~~ destination storage information, and wherein the carrier network interconnects storage area networks in the storage network; and

a first address translation module for swapping the ~~customer~~ source storage information and ~~customer~~ the destination storage information in the first header with ~~carrier-assigned~~ source carrier information and ~~carrier-assigned~~ destination carrier information to form ~~the~~ a second data packet, wherein the second data packet comprises a second header ~~containing~~ comprising the ~~carrier-assigned~~ source carrier information and the ~~carrier-assigned~~ destination carrier information for routing the second data packet from a source carrier node to a destination carrier node within the carrier network, and wherein the second header also comprises the source storage information and the destination storage information.

8 (Currently Amended). The apparatus of claim 7, further comprising:

a second address translation module for ~~restoring the customer source information and the customer destination information in the first header to recover~~ recreating the first

data packet from the second data packet at the destination carrier node for routing the first data packet to a destination storage address based upon the destination storage information.

9 (Currently Amended). The apparatus of claim 78, wherein the ~~customer destination storage address is a shared storage network address~~ an address in a shared storage area network in the storage network.

10 (Currently Amended). The apparatus of claim 7, further comprising:

a processing module to process the second data packet within the carrier ~~access~~ network according to the second header ~~containing~~ comprising the ~~carrier-assigned~~ source carrier information and the ~~carrier-assigned~~ destination carrier information.

11 (Currently Amended). The apparatus of claim 78, further comprising:

a storage module for storing the ~~second~~ recreated first data packet at a destination storage address in a shared storage area network.

12 (Currently Amended). The apparatus according to claim 7, wherein the ~~customer~~ network comprises a shared storage area network accessible by one or more customers, and the one or more customers send a plurality of the first data packets to the shared storage area network over the carrier ~~access~~ network, the apparatus further comprising:

a separating module for separating the second data packet ~~by~~ according to customer.

13 (Currently Amended). A method for providing virtual private addressing in a storage network ~~translating a storage network address of a first data packet to a carrier address of a second data packet, wherein the storage network address corresponds to a storage location in a storage network and the carrier address corresponds to a location in a carrier access network that provides access to the storage network,~~ the method comprising:

receiving ~~the~~ a first data packet at a carrier ~~access~~ network, wherein the first data packet comprises a first header ~~containing first~~ comprising source storage information and ~~first~~ destination storage information, and wherein the carrier network interconnects storage area networks in the storage network; and

encapsulating the first data packet within ~~the~~ a second data packet, wherein the second data packet comprises a second

header ~~containing second~~ comprising source carrier information and ~~second~~ destination carrier information for routing the second data packet from a source carrier node to a destination carrier node within the carrier network.

14 (Currently Amended). The method of claim 13, further comprising:

removing the first data packet from the second data packet at the destination carrier node so as to restore and route the first data packet ~~and first header containing the first source information and the first destination information~~ to a destination storage address based upon the destination storage information.

15 (Currently Amended). The method of claim 13~~4~~, wherein the destination storage network address is an address in a shared storage area network address in the storage network.

16 (Currently Amended). The method of claim 13, further comprising the step of:

processing the second data packet within the carrier ~~access~~ network according to the second header ~~containing~~ comprising the ~~second~~ source carrier information and ~~second~~ the destination

carrier information.

17 (Currently Amended). The method of claim 13~~4~~, further comprising:

storing the restored first ~~second~~ data packet at a destination storage address in a shared storage area network.

18 (Currently Amended). The method according to claim 13, wherein the storage network comprises a shared storage area network accessible by one or more customers, and the one or more customers send a plurality of the first data packets to the shared storage area network over the carrier ~~access~~ network, the method further comprising:

separating the second data packet ~~by~~ according to customer.

19 (Currently Amended). An apparatus for providing virtual private addressing in a storage network ~~translating a storage network address of a first data packet to a carrier address of a second data packet, wherein the storage network address corresponds to a storage location in a storage network and the carrier address corresponds to a location in a carrier access network that provides access to the storage network, the~~ apparatus comprising:

an address translation node for receiving ~~the~~ a first data packet at a carrier ~~access~~ network, wherein the first data packet comprises a first header ~~containing first~~ comprising source storage information and ~~first~~ destination storage information, and wherein the carrier network interconnects storage area networks in the storage network; and

an encapsulation module for encapsulating the first data packet within ~~the~~ a second data packet, wherein the second data packet comprises a second header ~~containing second~~ comprising source carrier information and ~~second~~ destination carrier information for routing the second data packet from a source carrier node to a destination carrier node within the carrier network.

20 (Currently Amended). The apparatus of claim 19, further comprising:

a removal module for removing the first data packet from the second data packet at the destination carrier node so as to restore and route the first data packet ~~and first header containing the first source information and the first destination information~~ to a destination storage address based upon the destination storage information.

21 (Currently Amended). The apparatus of claim ~~19~~20, wherein the destination storage network address is an address in a shared storage area network address in the storage network.

22 (Currently Amended). The apparatus of claim 19, further comprising:

a processing module to process the second data packet within the carrier ~~access~~ network according to the second header ~~containing~~ comprising the ~~second~~ source carrier information and ~~second~~ the destination carrier information.

23 (Currently Amended). The apparatus of claim ~~19~~20, further comprising:

a storage module for storing the restored first ~~second~~ data packet at a destination storage address in a shared storage area network.

24 (Currently Amended). The apparatus according to claim 19, wherein the storage network comprises a shared storage area network accessible by one or more customers, and the one or more customers send a plurality of the first data packets to the shared storage area network over the carrier ~~access~~ network, the apparatus further comprising:

a separating module for separating the second data packet
by according to customer.